



The State of New Hampshire  
*Department of Environmental Services*



Michael P. Nolin  
Commissioner

March 30, 2004  
**Letter of Deficiency**  
DSP#04-015

Mr. Tom Dutton  
Public Works Department  
City of Keene  
350 Marlboro Street  
Keene, NH 03431

RE: Babbidge Reservoir Dam #206.03, Roxbury

Dear Mr. Dutton:

The Department of Environmental Services, Dam Bureau (DES) consistently strives to enhance the safety of dams in New Hampshire through its dam safety program. One of the many instruments that play a part in reaching this goal is our inspection program. DES is forwarding this correspondence to you to advise you that in accordance with RSA 482:12 and Env-Wr 502.02, an inspection of the subject dam was conducted on October 1, 2003.

The following is a list of previously issued items of deficiency and their current status:

1. Review the Emergency Action Plan (EAP) and update, if necessary. Additionally, conduct a test of the EAP notification flowchart. **This has not been completed;**
2. Uncover and evaluate the low level outlet. Investigate the source of seepage noted in this area. Notify this office with your findings. Install a measuring weir and record seepage measurements in a formal log book. **This has not been completed;**
3. Repair the areas of concrete deterioration on the spillway training walls and stop log bay piers. It was indicated in the Intent to Complete Repairs received in this office on April 19, 2000 that this would be conducted depending on budget restraints. Please submit a schedule of expected repairs in this location. **This has been completed;**
4. Restore the flashboards to their original design or an approved design so as to increase discharge capacity to pass the intended design storm. The flash pin design will require DES approval. **This has been completed as approved through DES;**
5. Cut the brush and small tree growth within the outlet channel along the retaining wall that runs parallel to the dam as well as on the upstream side of this retaining wall at the toe of the dam. **The brush was removed from the channel to the end of the right training/retaining wall but has not been removed from the other locations;**
6. Remove rodents and backfill holes observed along the downstream embankment in proximity of old stumps left in place as part of a previous tree removal program. At any disturbed area along the downstream embankment initiate a hearty grass cover. **There was no evidence of rodent**

**activity or existing holes on this date and a hearty grass cover does not appear to have been established;**

7. Maintain a hearty grass cover along the downstream embankment to eliminate the introduction of undesirable vegetation such as pine seedlings and mow the embankment at least twice a year. **This does not appear to have been initiated;**
8. Investigate and repair the 2-foot depression near the area of the water control gates at the toe of the dam along the water line. Additionally, remove the small pine trees, which were observed in this location. **This does not appear to have been conducted and brush was taking over this area limiting inspection of this area;**
9. Fill the 6-inch depression along the right spillway-training wall and place a hearty vegetative cover to help eliminate erosion. **This has been completed;**
10. Monitor and repair, as necessary, the concrete barrier placed around the gatehouse as part of what appears to be ice and wave action protection. **The concrete barrier does not appear to have deteriorated further since the last inspection. However, it is unclear if the underlying deteriorated foundation of the gatehouse, as was observed in the August 1981, Department of the Army New England Division, Corps of Engineers, Phase I inspection Report, has been jeopardized further due to the separation of the concrete barrier/patch.**

The following deficiencies were noted during this inspection (10/01/03):

11. Brush was growing in the right downstream groin and at the toe of the dam. The brush is abundant in the area of the historic seepage through the low-level outlet limiting inspection of this area; and
12. Wood debris from previous construction activity remained at the downstream toe of the dam.

DES believes that the above deficiencies can be corrected by performing the following items by the indicated schedule:

**May 1, 2004:**

1. Conduct a test of the EAP notification flowchart and update the EAP as necessary. If you have questions relative to the testing or updating of your EAP you can contact Bethann McCarthy, P.E., our EAP coordinator at 271-3406;

**September 1, 2004:**

2. Uncover and evaluate the low level outlet, investigate the source of seepage noted in this area, and notify this office with your findings. Install a measuring weir and record seepage measurements in a formal log book;
3. Cut the brush and small tree growth along the upstream side of the right training/retaining wall supporting the primary spillway;
4. Develop a hearty grass cover along the downstream embankment to eliminate the introduction of undesirable vegetation such as pine seedlings and mow the embankment at least twice each year;
5. Investigate and repair the 2-foot depression near the area of the water control gates at the toe of the dam along the water line. Additionally, remove all the brush and small tree growth within 20 feet of this area and within 20 feet of the toe of the dam; and

**December 1, 2004:**

6. Investigate and repair the gatehouse foundation and if necessary, replace the concrete barrier around the gatehouse as part of what appears to be ice and wave action protection.

DES is requesting that you complete and submit the attached "Intent to Complete Repairs" form, within 30 days of receipt of this letter, that will provide for correction of the identified deficiencies by the date(s) indicated above. Please call or write to our office if the repairs are completed ahead of the aforementioned schedule so that DES may schedule a follow-up inspection. Unless notified otherwise, DES will conduct the follow-up inspection on or after the date(s) indicated above. If you believe changes to the items of work or dates are necessary, please make the changes directly on the form and provide a brief explanation. We have enclosed a self addressed stamped envelope for you to return this form.

Our intent in sending you this correspondence is to make you aware of items that DES believes warrant your attention to insure the continued safe operation of your dam. It is our hope that, through the submittal of the attached form and a commitment to keeping a well-maintained dam, you will voluntarily comply with the requested items of work. If we do not receive the intent form or a similarly adequate written reply, we will assume that you are in agreement with our findings and recommendations and DES will carry out follow-up inspections accordingly.

If you have any questions or comments regarding this Letter of Deficiency or would like to be present at future inspections, please contact me at 271-3406, or write to the Water Division at the address listed on the cover page.

Sincerely,

**COPY**  
Dale F. Guinn, P.E.  
Dam Safety Engineer

Attachments DB8, DB13

cc: Gretchen Rule

Town of Roxbury

Bethann McCarthy, P.E., EAP Coordinator

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